US 31W/ KY 446 STUDY

OLD PORTER PIKE TO
PLUM SPRINGS LOOP (KY 957)
BOWLING GREEN
WARREN COUNTY

Public Meeting

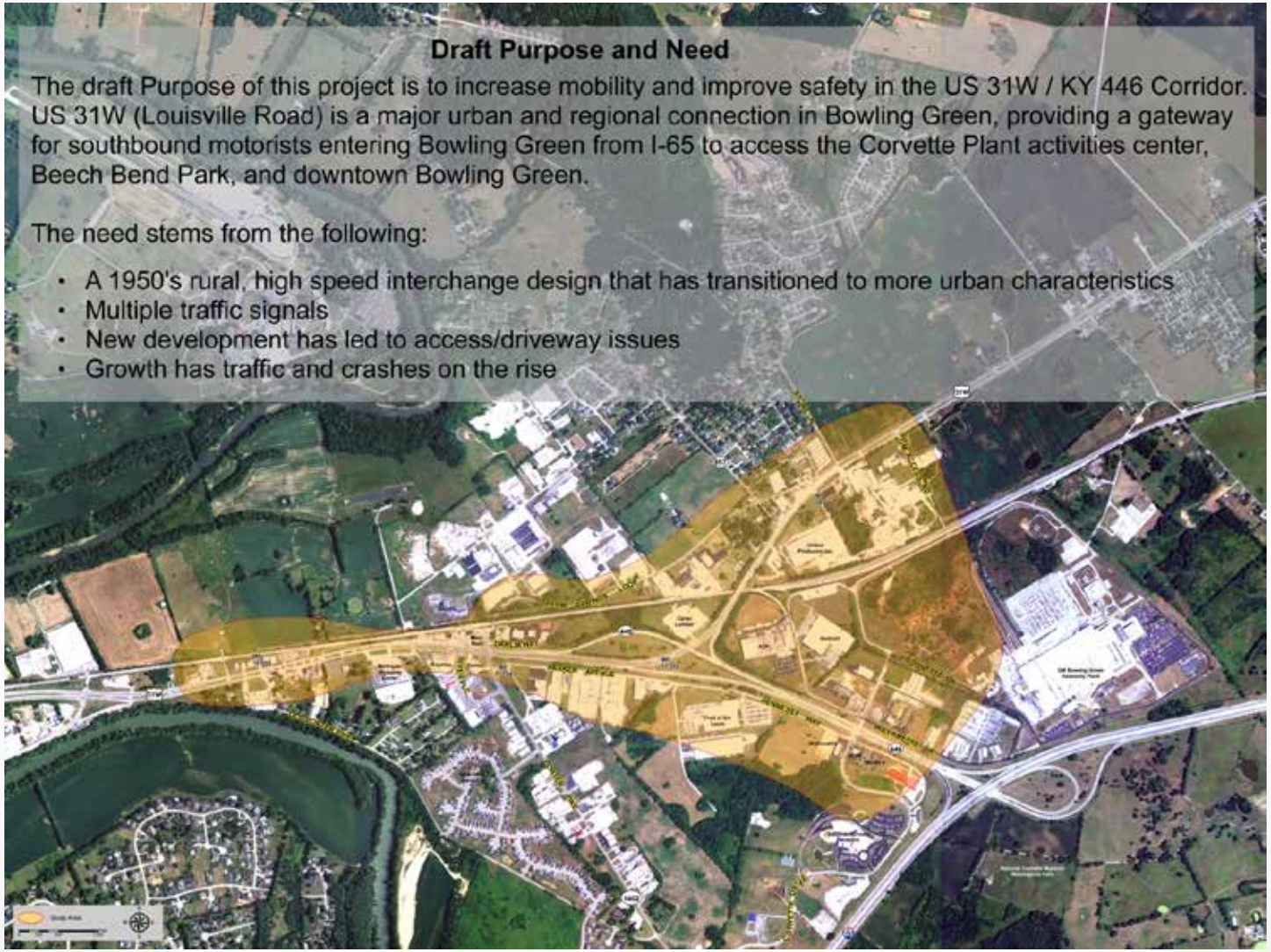
September 29, 2015

QK4
Engineering Planning

Groundbreaking by Design.

KENTUCKY
TRANSPORTATION
CABINET

Study Area
Purpose and Need



Scope of Work

The Major Focus

US 31W/KY 446 Interchange

- New interchange configuration
- At grade intersection
- Roundabout

Additional Tasks

- Improvements to Existing Interchange
- Spot Improvements
- Access Management in Project Corridor

What We Heard

- Safety and Congestion are of the greatest concern
- Greatest Areas of Concern
  - KY 446 to US 31W NB (most dots at first public meeting)
  - KY 446 to SB US 31W
  - Narrow Underpass
  - Porter Pike / US 31W intersection
- List of Threatened & Endangered species
- Karst topography
- Four areas that may still be considered farmland;
- "Concerned that the proposed undertaking will have impacts to historic resources…";
- Sinkholes, groundwater wells, and springs within a one mile radius;
- Define the height of existing trees as project progresses

Additional Stated Needs/Concerns

- **US 31W/KY 446 interchange**
  - The interchange needs lighting (street lights)
  - KY 446 to I-65 signage not clear
- **Plum Springs Loop**
  - Right turn lane on US 31W to Plum Springs Loop
- **Corvette Drive/KY 446**
  - Right turn signalization @ Corvette
  - New Hennessy Way connector should connect to Corvette Drive
  - Semi's parking and turning around on north Corvette Drive
  - Crosswalk on KY 446 at Corvette Drive
  - Fruit of the Loom traffic bad at Porter Pike and Corvette Drive
- **Porter Pike/US 31W**
  - No left turn signal phasing @ Porter Pike (north)
- **Old Porter Pike/US 31W**
  - Need full signal at Old Porter Pike
- **KY 957/US 31W N**
  - Confusion north on US 31W at KY 957 people turning into KY 957 and Stone Lane from same turn lane.
  - Dedicated left turn phase at Plum Springs going North on US 31W, currently flashing yellow
- **Other**
  - Willamette Dr. sharp curve doesn't allow car and truck to pass each
  - Heavy truck traffic at Android
  - Any surplus property could be used for park and ride facilities or public transit

Developed potential solutions with your input

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Do Nothing

- Do not make any improvements and maintain what is there.

Build Options

1) Options

A. Access Control from Porter Pike to Old Porter Pike;

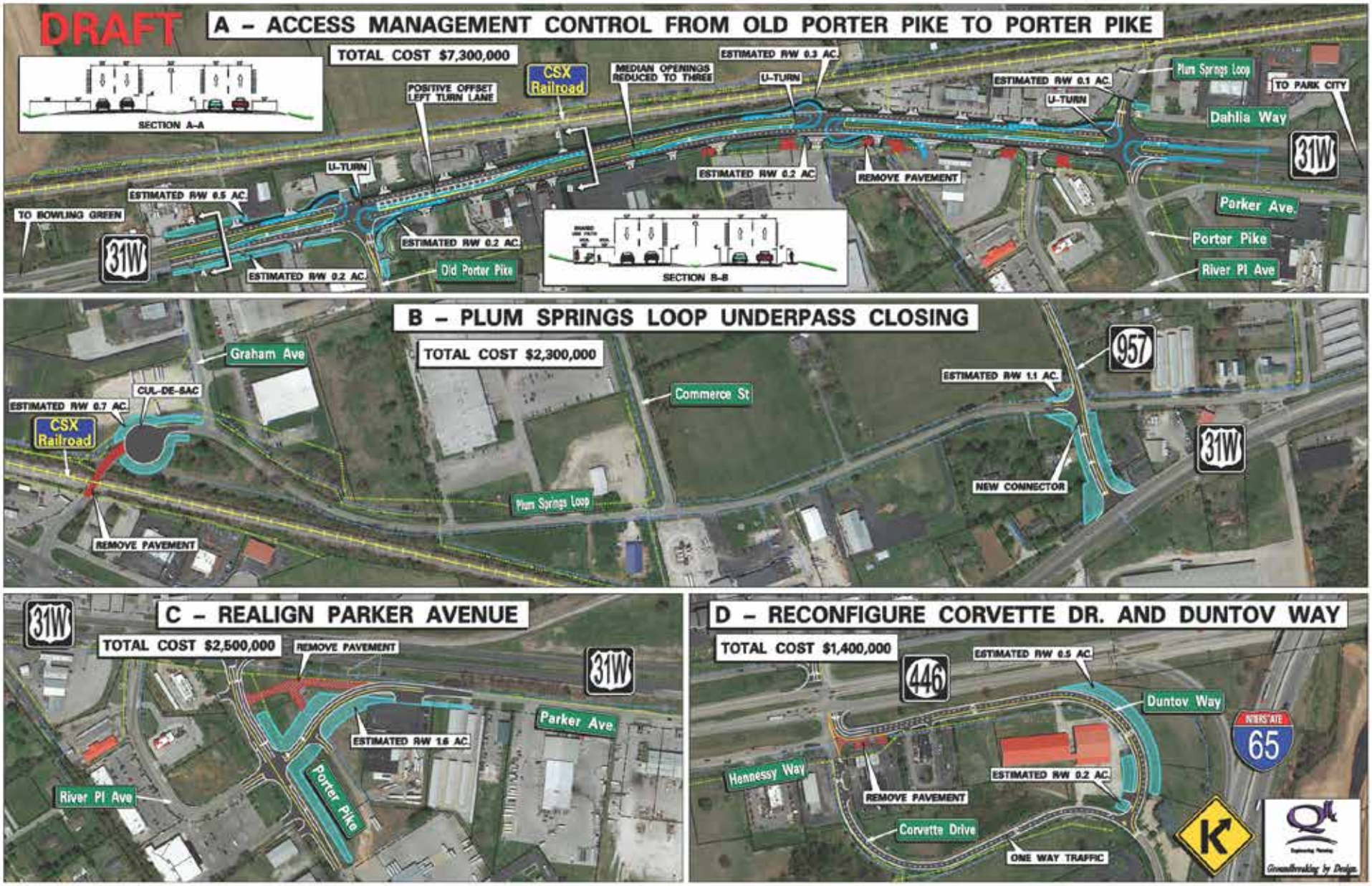
   i. Sight distance issue at Old Porter Pike

B. Plums Springs Underpass closure & realignment of KY 957

C. Realignment of Parker Avenue

D. Reconfigure Corvette Drive/Duntov Way

Options

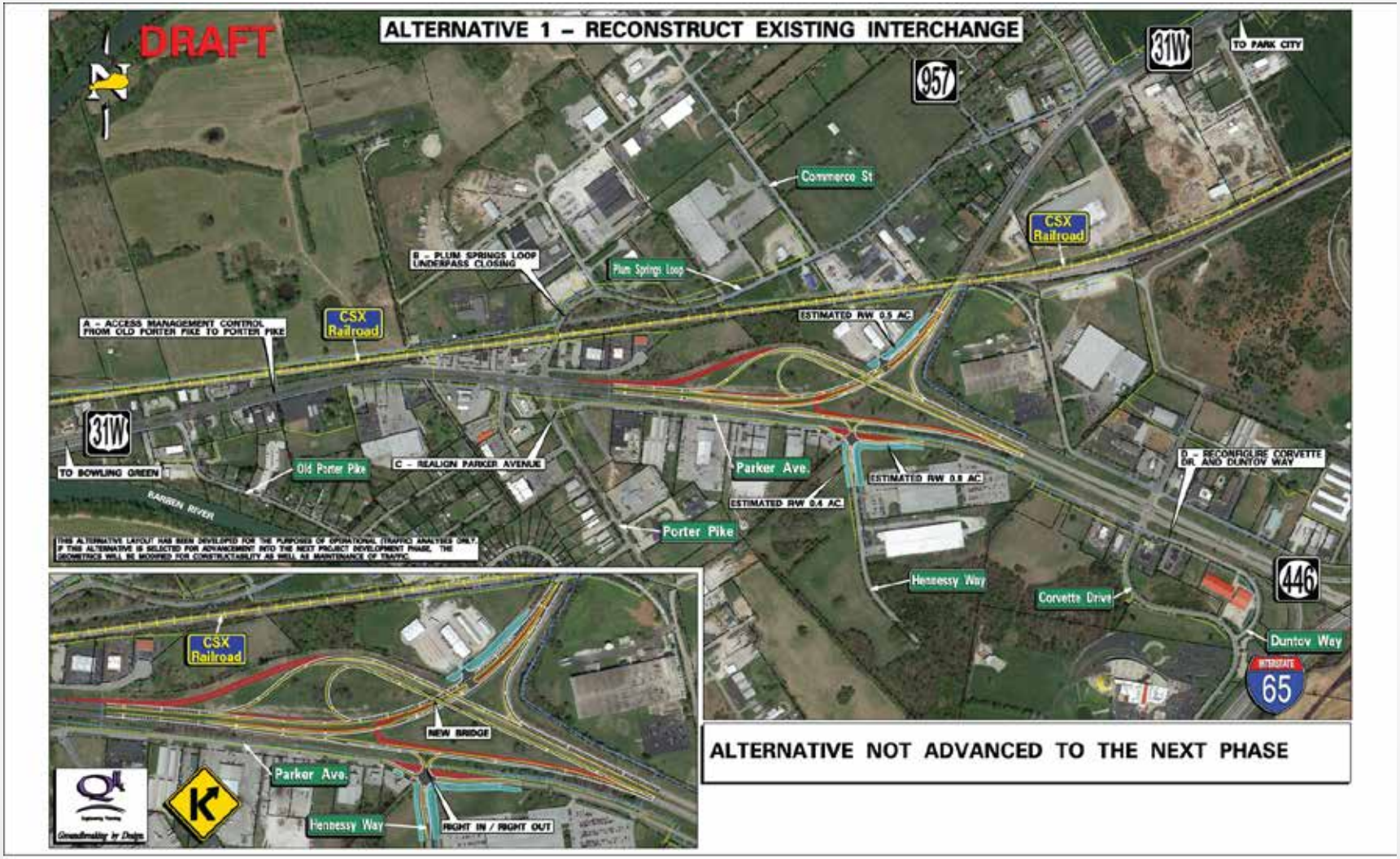

DRAFT
A – ACCESS MANAGEMENT CONTROL FROM OLD PORTER PIKE TO PORTER PIKE
TOTAL COST $7,300,000
SECTION A–A
POSITIVE OFFSET LEFT TURN LANE
CSX Railroad
MEDIAN OPENINGS REDUCED TO THREE
U-TURN
ESTIMATED R/W 0.3 AC.
ESTIMATED R/W 0.1 AC.
U-TURN
Plum Springs Loop
TO PARK CITY
Dahlia Way
31W
ESTIMATED R/W 0.2 AC.
REMOVE PAVEMENT
U-TURN
ESTIMATED R/W 0.5 AC.
TO BOWLING GREEN
31W
ESTIMATED R/W 0.2 AC.
ESTIMATED R/W 0.2 AC.
Old Porter Pike
SECTION B–B
Parker Ave.
Porter Pike
River Pl Ave
B – PLUM SPRINGS LOOP UNDERPASS CLOSING
TOTAL COST $2,300,000
Graham Ave
CUL-DE-SAC
ESTIMATED R/W 0.7 AC.
CSX Railroad
Commerce St
ESTIMATED R/W 1.1 AC.
957
31W
NEW CONNECTOR
Plum Springs Loop
REMOVE PAVEMENT
C – REALIGN PARKER AVENUE
31W
TOTAL COST $2,500,000
REMOVE PAVEMENT
31W
Parker Ave.
ESTIMATED R/W 1.6 AC.
Porter Pike
River Pl Ave
D – RECONFIGURE CORVETTE DR. AND DUNTOV WAY
TOTAL COST $1,400,000
ESTIMATED R/W 0.5 AC.
446
Duntov Way
INTERSTATE
65
Hennessy Way
ESTIMATED R/W 0.2 AC.
REMOVE PAVEMENT
Corvette Drive
ONE WAY TRAFFIC
K

Interchange Alternatives

1. Interchange Reconstruction
2. At Grade “Green T” intersection
3. At Grade “4-Way” intersection
4. Roundabout

4a. Roundabout with KY 1402 Porter Pike Extension

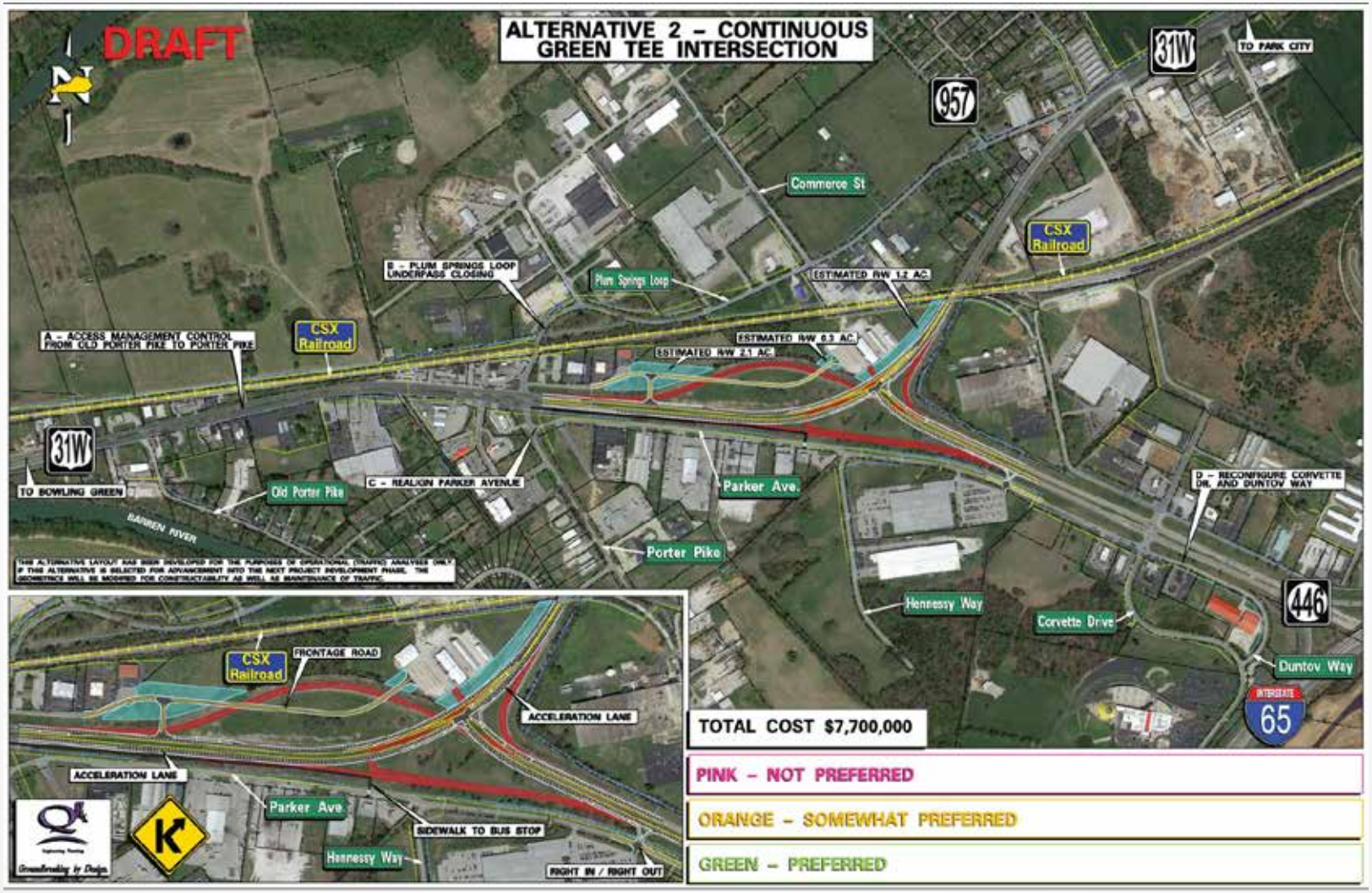
Alternative 1



Alternative 1 Description

- Removes US 31W southbound to KY 446 eastbound short ramp and provides 25 mph loop
- Provides over 600 feet of additional merge length for the movement from KY 446 WB to SB US 31W toward Bowling Green at the Porter Pike / US 31 W intersection.
- Eliminates the merge from KY446 WB to US 31W NB
- Eliminates signal at US 31W SB Ramp to KY 446 EB (or I-65)

Alternative 2

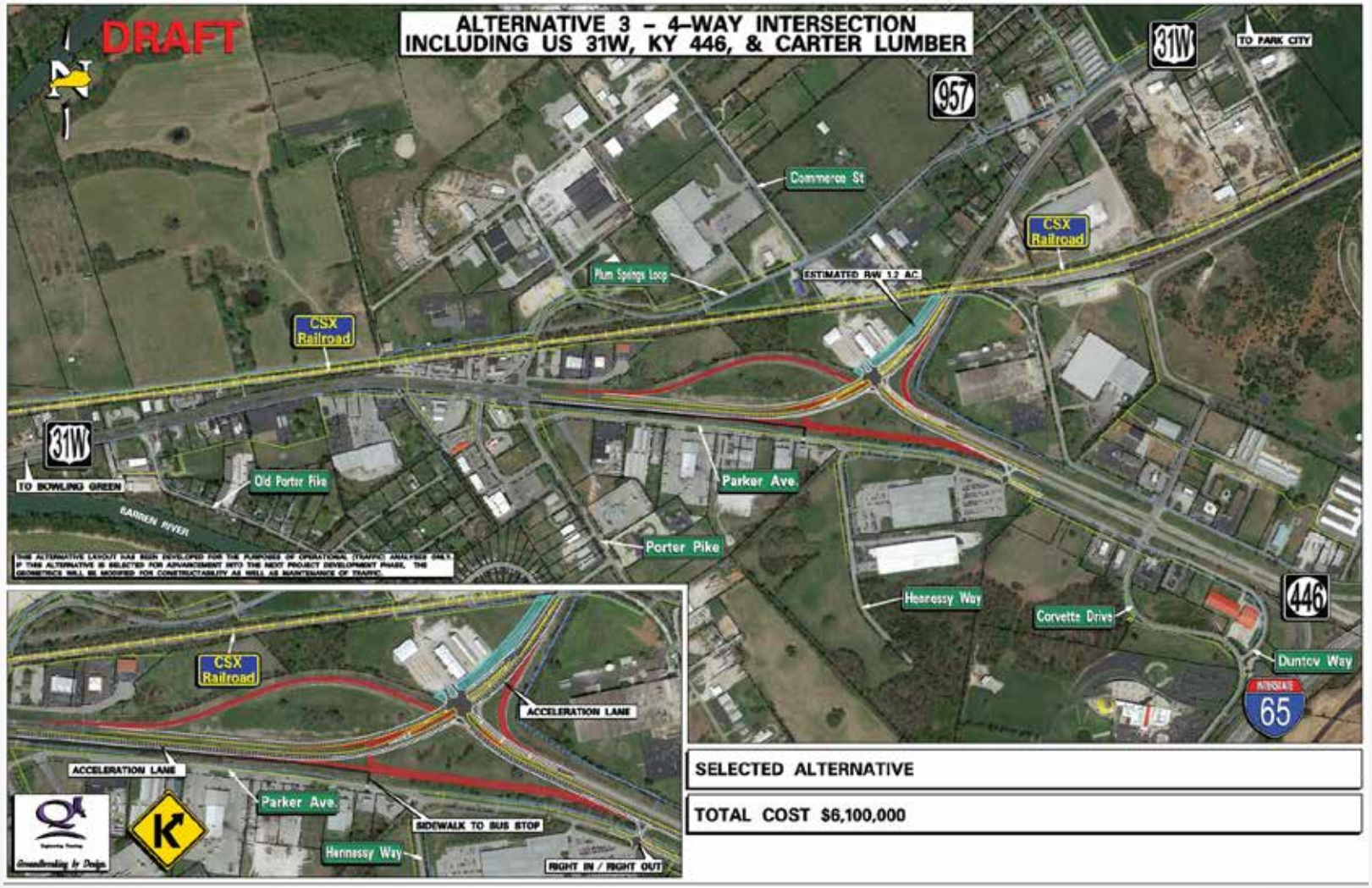


Alternative 2 Close-up

Alternative 2 Description

- US 31W is the through movement
- An acceleration lane for motorists traveling WB on KY 446 to NB US 31W
- Modified access to US 31W for Carter Lumber closer to Porter Pike
- Modified connection to Dahlia Way from US 31W
- Carter Lumber may have right in / right out North of existing intersection

Alternative 3

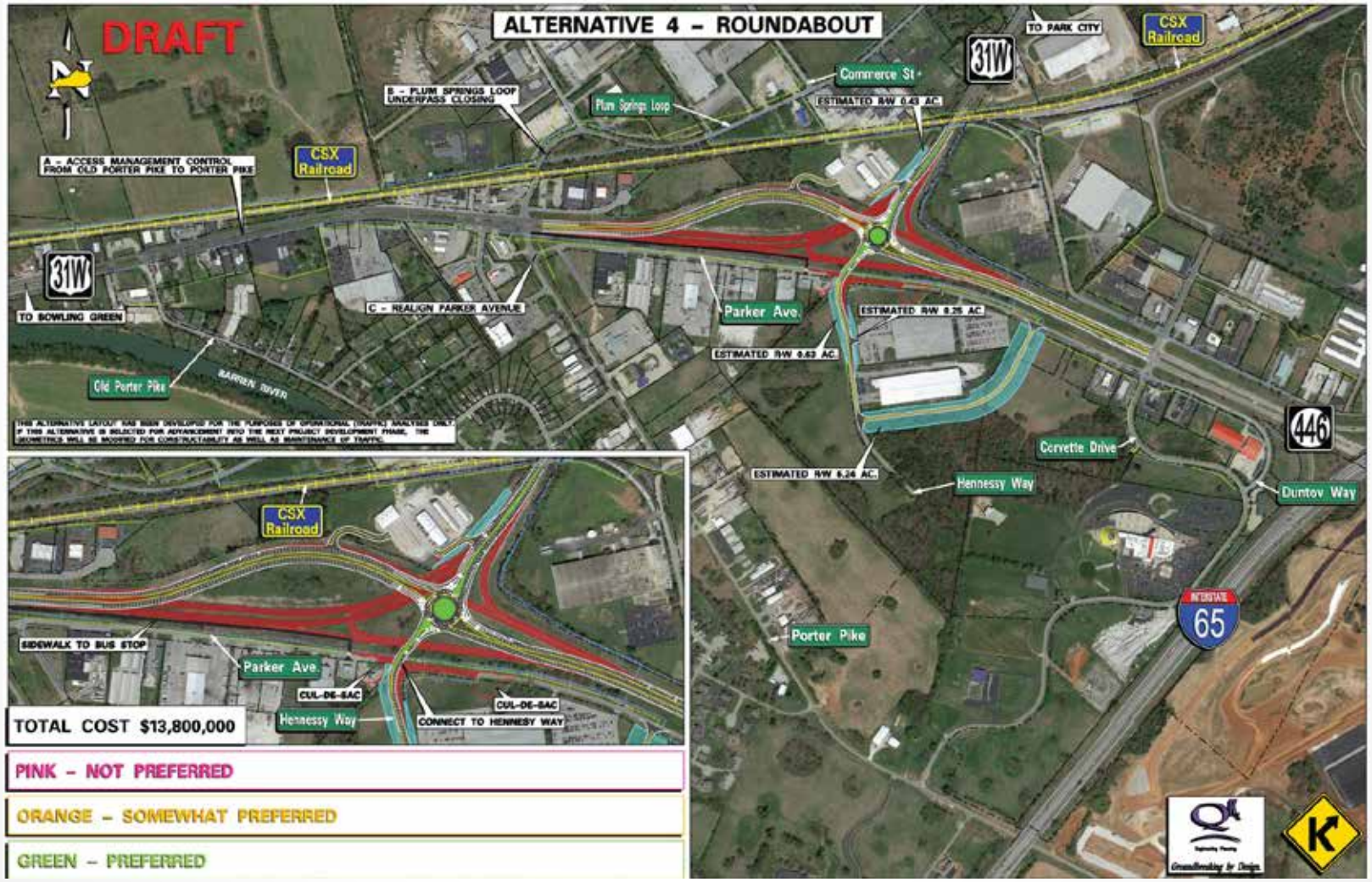


Alternative 3 Close-up

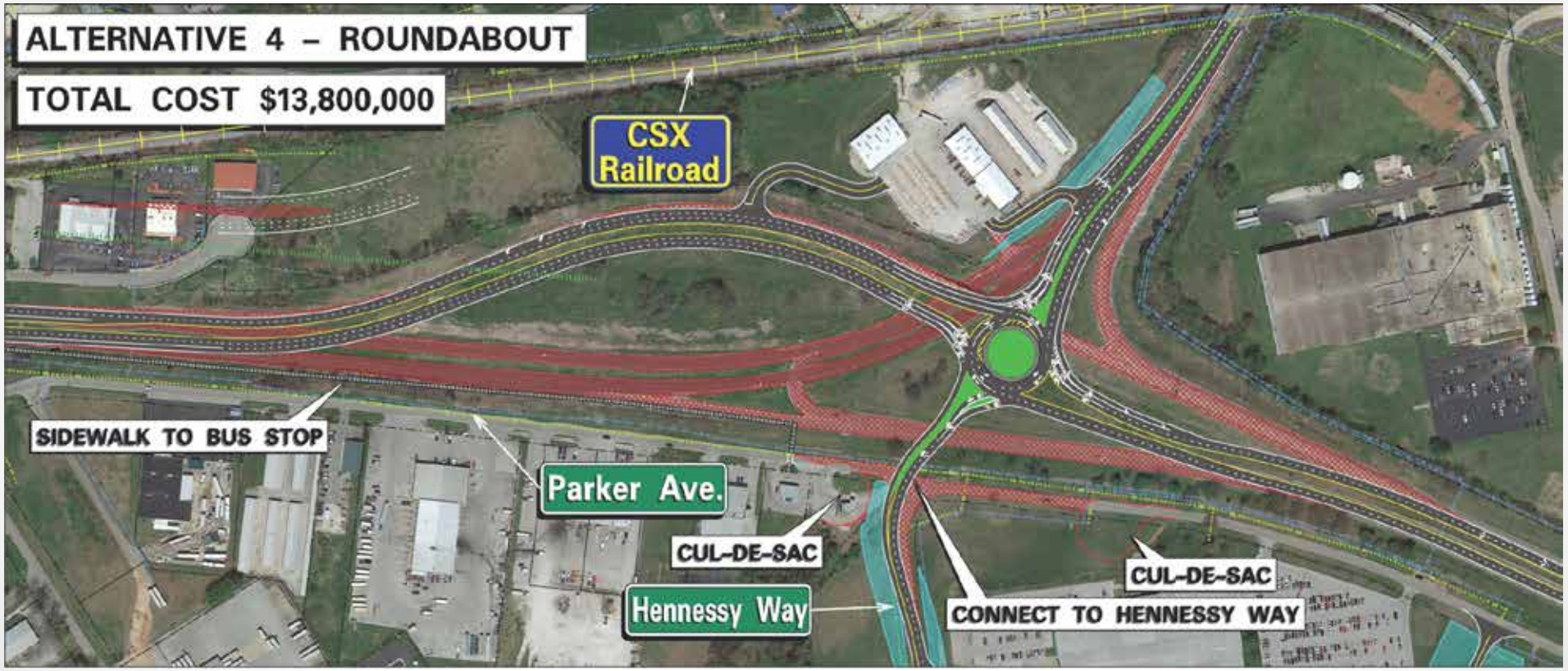
Alternative 3 Description

- Takes advantage of the existing infrastructure.
- US 31W is the through movement.
- Provides full access to Carter Lumber.
- Improves the movement from KY446 WB to US 31W NB by providing a 180’ long parallel acceleration / merge lane
- Provides right in / right out for Fruit of the Loom.

Alternative 4



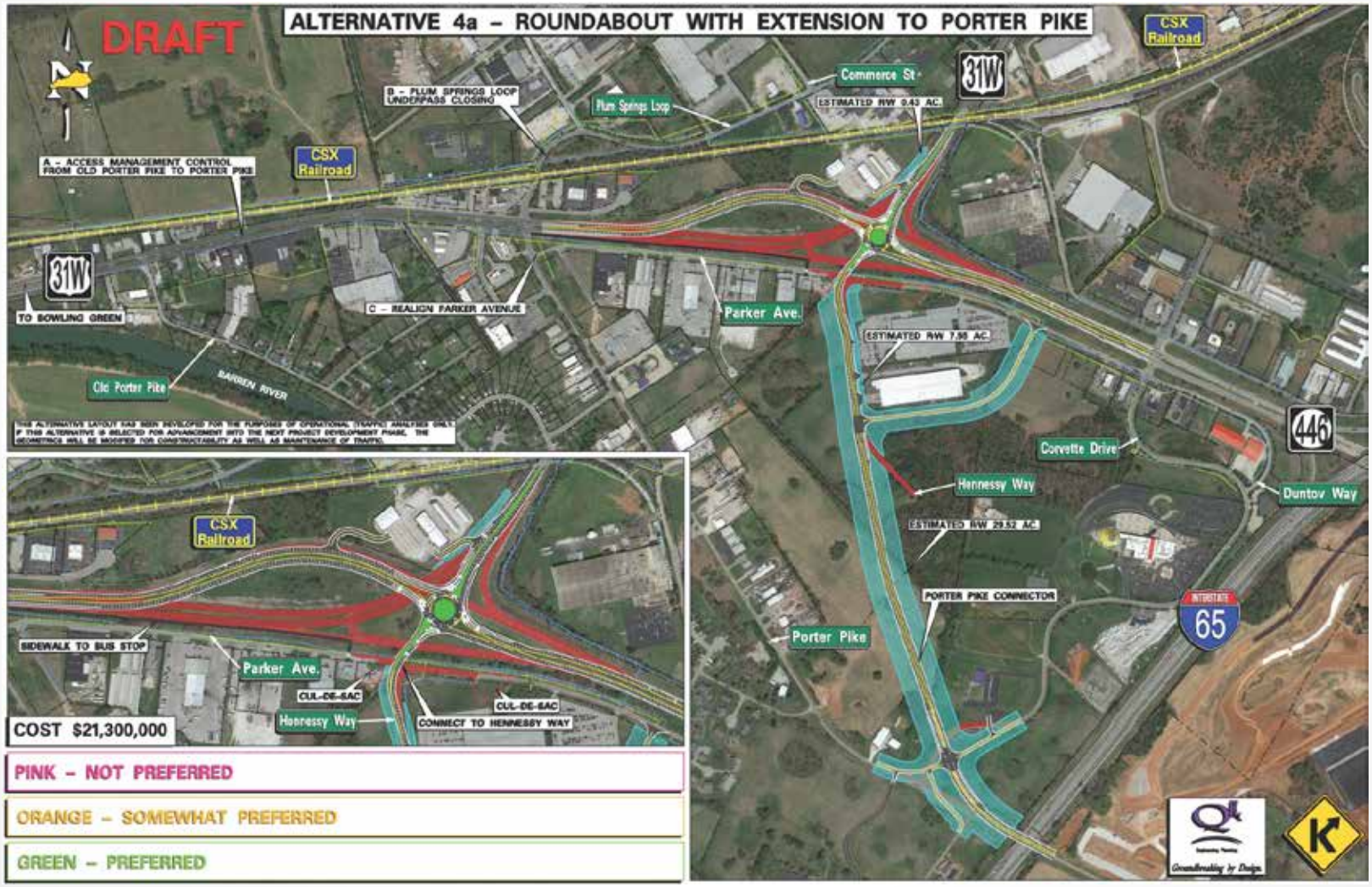
Alternative 4 Close-up



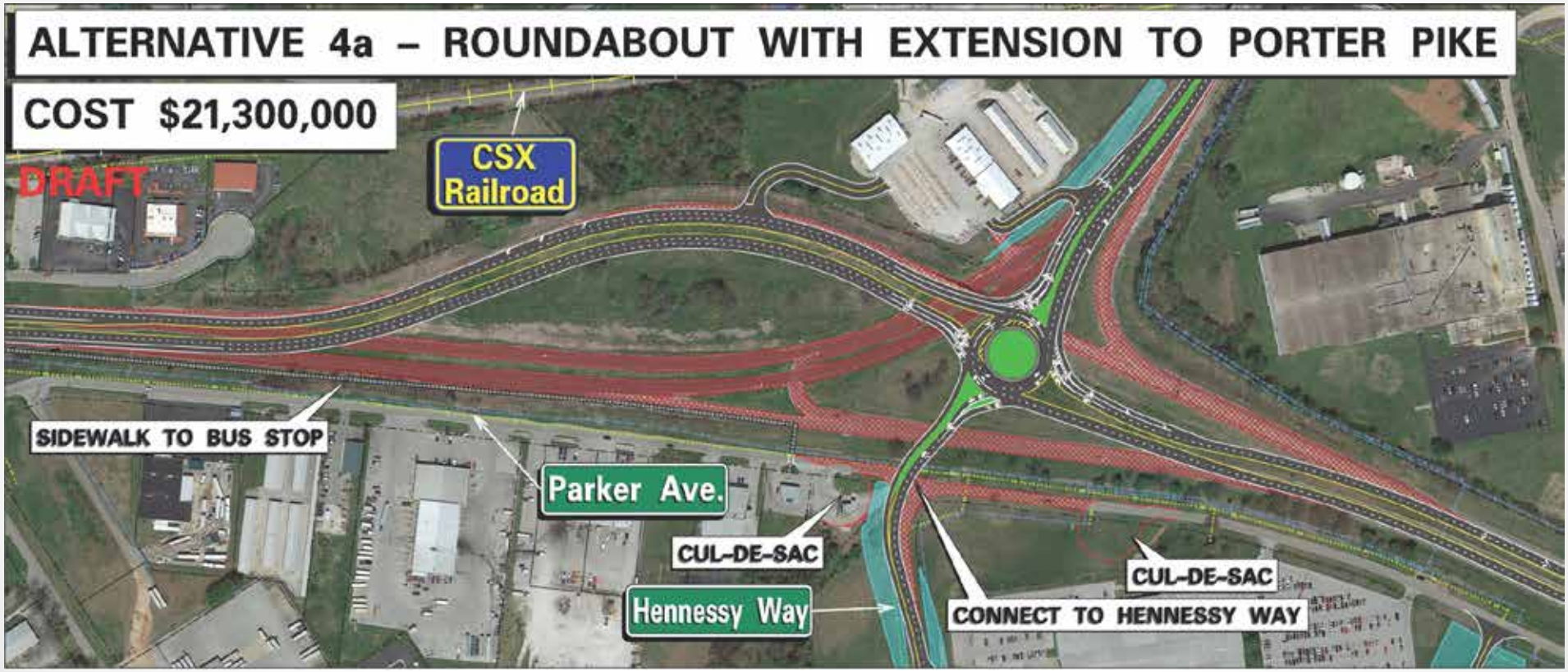
Alternative 4 Description

- Utilizes continuous lanes for US 31W SB to US 31W WB and KY 446 EB to US 31W NB. Utilizes partial right turn slip lanes for US 31W EB to Proposed Entrance and from Proposed Entrance to KY 446 where traffic yields to conflicting exiting traffic.
- Provides for three lanes on US 31W from Porter Pike to the roundabout.
- Prohibits Parker Avenue access to Hennessy Way
- Carter Lumber access may require modification.
- Eliminates two major safety concerns (merge from US 31W SB to Porter Pike)

Alternative 4a



Alternative 4a Close-up



Alternative 4a Description

- Same as Alternative 4 but extends the southern leg to Porter Pike.

Timely Opportunity

- CONCRETE PAVEMENT IS 50 YEARS OLD –
  - KYTC Pavement Rehabilitation Project (scheduled & funded) includes:
    - KY 446
    - US 31W / KY 446 ramps, and
    - I-65 ramps at Exit 28.

Opportunity / Decision Point

- Rehabilitation has been funded and scheduled ($3 million in the next year and includes the US 31W / KY 446 interchange in this study. We could
  - Build an at-grade intersection now for less or equal money
  - Replace Pavement Now ($3,000,000).....then in the near future, tear out the replaced pavement and build a selected alternative.

OR

- Opportunity - within 2016 we can have new pavement and an implemented alternative for the US 31W/ KY 446 interchange.

Recommendation Quick Win

- We do not want to lose this investment and a decision was necessary to take advantage of this opportunity.
- RECOMMENDATION: IN THE COMING YEAR, BUILD AN AT-GRADE INTERSECTION OF KY 446 & US31W WITHIN THE PAVEMENT REHAB PROJECT !

Selected Alternative 3
4 Way Intersection

Selected Alternative

- This design is draft, but the alternative will look very similar to Alternative 3 in this study.
- Takes advantage of the existing infrastructure
- US 31W is the through movement
- Discussion:
  - Sight distance issues on US 31W coming SB on the sweeping curve. The current speed limit on US 31W southbound is 55 mph and the intersection would be 45 mph (the speed differential and sight distance may be an issue to address depending upon the final design)
  - This will necessitate slowing motorists down

What are the benefits?

- Benefits
  - Intersection fits in urban context!
  - Driver expectations are now consistent.
  - Speed is consistent within study area.
  - 2 major safety concerns addressed
    - KY 446 to US 31W Northbound Ramp
    - KY 446 to Bowling Green Ramp
  - Does not prevent future alternatives or options.
- Cons
  - Some delay will be experienced
  - More conflict points over the existing interchange

WHAT DOES THIS MEAN FOR OUR STUDY? DO WE STOP THE STUDY?

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No

Planning is a conversation. So what is there still to talk about? - future long-term solutions---

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Remaining Alternatives

- **Do Nothing** - no future investment

Future Build Alternatives

- **Alternative 2** - the Green T intersection
- **Alternative 4** -Roundabout
- **Alternative 4a** –Extension to Porter Pike

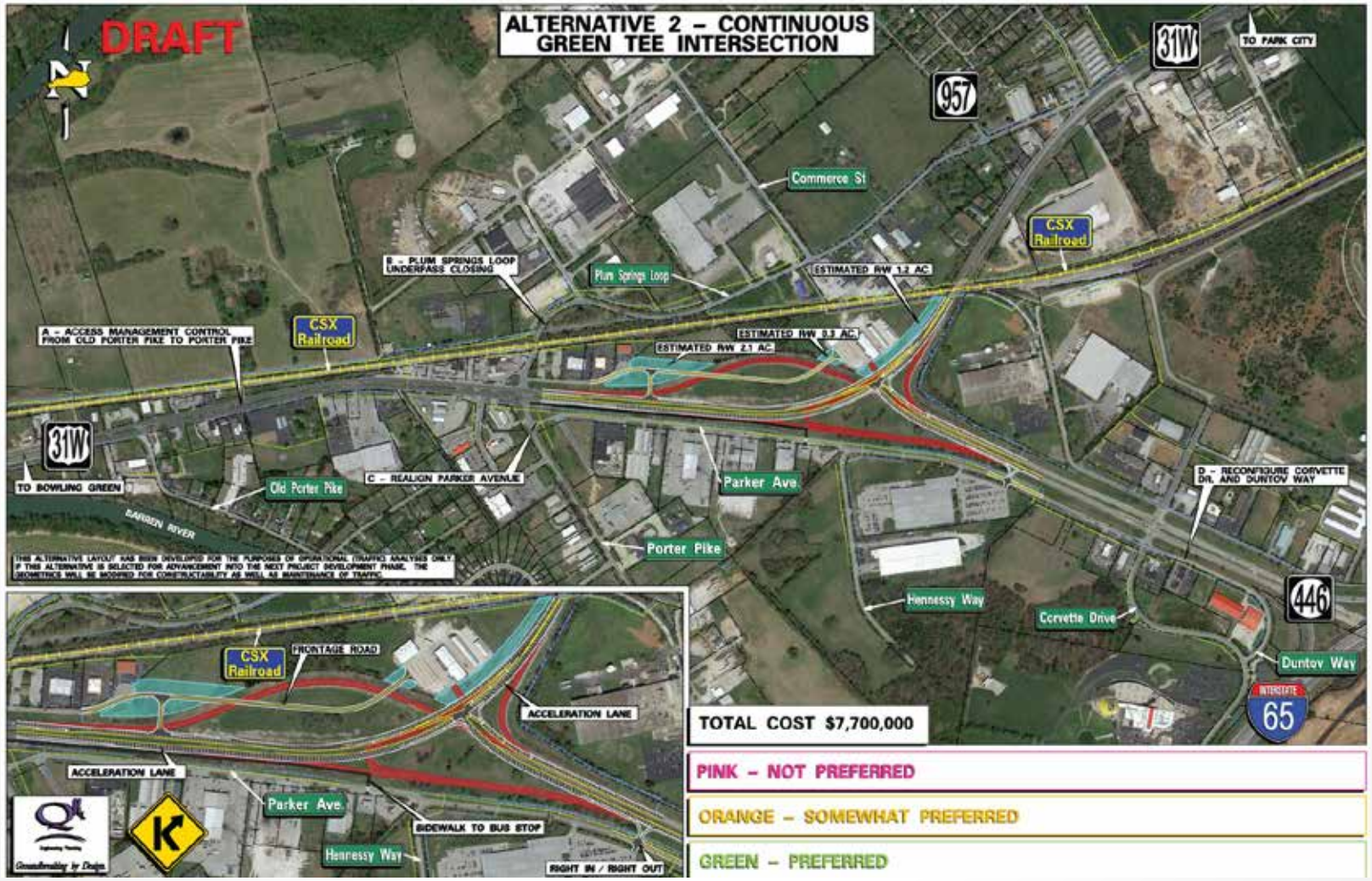
All Build Alternatives include:

- Parker Avenue realignment
- Sidewalk from Porter Pike to Bus Station utilizing the existing roadbed
- May not include the new signal at Fruit of the Loom.
- Access Management from Porter Pike to Old Porter Pike

Do Nothing

- Do nothing beyond the 4-way intersection that will be built with the pavement rehabilitation project.

Future Alternative 2 Green Tee Intersection



Alternative 2 – Green Tee Intersection

- Benefits
  - Provides urban context
  - Slows motorist down
  - US 31W SB to Bowling Green is continuous (heaviest movement)
  - Continuous right turn from US 31W to KY446
  - 330 feet of additional merge length for the movement from US 31W SB to Bowling Green at the Porter Pike / US 31W intersection.
  - Improves the movement from KY446 WB to US 31W NB by providing a 180' long parallel acceleration / merge lane
  - Less conflict points than a 4-way intersection (Alternative 3)
  - Has less total delay than Alternative 3
  - Eliminates two major safety concerns (merge from US 31W SB to Porter Pike and US 31W NB from KY 446 EB)

Alternative 2

- Cons
  - The continuous traffic flow along US 31W SB could potentially be moving at a higher rate of speed causing safety concerns for the KY 446 WB merging traffic
  - WB KY 446 to BG merges from the left and may be in a slight curve. Southbound traffic from the north will be on a downgrade. This movement also backs up during peak hour
  - KY 446 WB to US 31W SB (toward Bowling Green) is one of the highest volume movements the single left turn lane here would cause traffic to back up onto KY 446 prior to the signal

Future Alternative 4 Roundabout

Future Alternative 4 Roundabout

- Benefits
  - Least total delay of other options except Alternative 1
  - Urban Context
  - Keeps everyone moving
  - Reduces speeds
- Cons
  - Complex and may be confusing to drivers
  - Most expensive
  - Fruit of the Loom does back up in PM peak hour due to motorist "finding" gaps in traffic to head North on US 31W or South on US 31W toward Bowling Green. Therefore the newly installed signal may need to be left in place

Future Alternative 4a Roundabout and Extension to Porter Pike

Future Alternative 4a

- Benefits
  - Least total delay of other options
  - Urban Context
  - Keeps everyone moving
  - Reduces speeds
  - Provides an extension south to Porter Pike
- Cons
  - Roundabout is complex and may be confusing to drivers
  - Most expensive
  - Fruit of the Loom does back up in PM peak hour due to motorist "finding" gaps in traffic to head North on US 31W or South on US 31W toward Bowling Green. Therefore the newly installed signal may need to be left in place

Remaining Options

- Options A, B, C, D are standalone projects and need your input.
  - Option A – Access Management from Old Porter Pike to Porter Pike
  - Option B – Closing of Plum Springs Loop and the realignment of KY 957
  - Option C – Parker Avenue Realignment
  - Option D – Reconfigure Corvette Drive and Duntov Way to one-way.

Future Options

Option A – Access Management from Old Porter Pike to Porter Pike

- Pros
  - Reduces conflicts
  - Expected to reduce crashes 17%
  - Improves sight distance at Old Porter Pike
  - Channelizes some business access / parking lots
  - Helps with drainage
- Cons
  - Changes driver expectation
  - Removes median access to some businesses
  - US 31W/Old Porter Pike intersection may have to be signalized

Option B - Closes Plum Springs Loop Underpass

- Pros
  - Relieves some congestion at US 31W / Porter Pike and Porter Pike / Dahlia Way intersections
  - Eliminates cost of widening railroad bridge
  - Realigns Plum Springs Loop and KY 957 at the US 31W North end
- Cons
  - Additional travel time for industry
  - Additional travel time for emergency vehicles if a removable barricade is not used

Option C – Realign Parker Avenue

- Pros
  - Additional 550 feet of queue length on Porter Pike Hennessy Way to Porter Pike
  - Aligns Parker Avenue with River Place / Porter Pike intersection
- Cons
  - Expensive right of way costs

Option D – Reconfigure Corvette Drive & Duntov Way

- Pros
  - Reduces conflicts from Hennessy Way and businesses very close to KY 446
  - Channelizes business entrances
  - Movies shell entrance to Corvette Drive.
  - Moves prior “Liquor Store” entrance to moved Hennessy Way”
  - Improves travel flow at the KY 446 / Corvette Drive intersection.
- Cons
  - Additional travel for business patrons

Please Give us Your Input!

- **Survey at this Meeting**
- **Survey On-Line**

http://transportation.ky.gov/YourTurn/Pages/US-31W-Corridor-and-KY-446-Ramps-Study.aspx

- **Sticker Dot Exercise**

Please Walk Around

- Staff will be there to answer your questions
- Begin on the left facing the back of the room
- Look for people with name tags to answer any questions you may have.
- Don’t forget to fill out your survey!

Dot the map! Let us know your thoughts.

- **Pink** – not preferred
- **Orange** – somewhat preferred
- **Green** - most preferred

US 31W/KY 446 PLANNING PROJECT MANAGER CONTACT INFORMATION

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